03E-003 (1/2)

Safety Recall Report Guide for Equipment
PART 573

On January 27, 2003, Electronic Mobility Controls, LLC decided to conduct a safety recall which relates to items of motor vehicle equipment listed below, and is furnishing notification to the National Highway Traffic Safety Administration in accordance with 49 CFR Part 573 Defect and Noncompliance Reports.

Date this report was prepared: **February 11, 2003**

Identify the full corporate name of the fabricating manufacturer/brand name/trademark owner of the recalled item of equipment. If the recalled item of equipment is imported, provide the name and mailing address of the designated agent as prescribed by 49 U.S.C. §30164.

Electronic Mobility Controls, LLC
6141 Crestmount Drive
Baton Rouge, LA 70809

Identify the corporate official, by name and title, that the agency should contact with respect to this recall.

Ric Reulet, Jr. P.E.
VP of Operations

Telephone Number: **225-927-5558** Fax Number: **225-924-5556**

Name and Title of Person who prepared this report.

Ric Reulet, Jr. P.E.

Signed: _____

03E-003 (2/6)

I. Identify the Recalled Items of Equipment

2. Identify the Items of Equipment Involved in this Recall:

Generic name of the item: **DS-2000 Digital Steering System**

Function: **Remote Powered Steering Control System for people with disabilities.**

Other information which characterizes/distinguishes the items of equipment to be recalled:

Identify the approximate percentage of the production of all the recalled models manufactured or distributed by your company between the inclusive dates of the manufacture provided above, that the recalled model population represents.

100%

II. Identifying the Recall Population

3. Furnish the total number of items of equipment recalled.

Items Model	Year	Number of Potentially Involved
DS-2000	**12/06/94 – 05/14/01 S/N 1001 - 1537**	**537**

Total Number Potentially Affected by the Recall: **537 (approximately 375-400 in the United States)**

4. Furnish the approximate percentage of the total number of items of equipment estimated for modification:

500 (93%)

Identify and describe how the recall population was determined—in particular how the recalled models were selected and the basis for the beginning and final dates of manufacture of the recalled items of equipment:

Beginning and final dates of manufacture are based on dates of sale. The dates of sale are representative of the completion of the assembly phase of manufacturing. The recall population was determined by the total number of units sold. It is estimated by EMC that at least 30-40 units are no longer in service.

III. Describe the Product Modifications

5. Describe the modifications. The description should address the nature and physical location of the modifications. Illustrations should be provided as appropriate.

The DS-2000 consists of three major components: the output servomotor, the input low-effort steering device, and the CPU. For the purpose of this Safety Improvement Campaign, the CPU must be removed from the vehicle and returned to the EMC Service Center for the following modifications:

a) **The CPU will be modified so that the A2D converter will be fed ½ the encoder reference voltage through a resistive divider. The software will be changed to monitor voltage at startup to make sure that it is in an acceptable range. If during operation it changes from its startup value, the system will give an error, switch processors and go into what is termed "open loop" mode of operation. This effectively tests all three references to the system (2 input potentiometers and 1 output potentiometer).**
b) **The software will be modified so that the "rate limit" for the input potentiometer values is changed from 5 counts/2ms to 4 counts/2ms. This effectively increases the sensitivity of the system to drastic changes in the input position. The purpose of the rate limit is to identify improper values and immediately switch the system into "open loop" mode of operation. By reducing the "rate limit" the movement of the output in response to an inappropriate input is reduced.**
c) **EMC will update the hardware and software within each CPU to the current revision.**

In addition to the hardware and software changes within the system, EMC will also implement the following:

a) **All dealers will be required to review the power connection for the DS-2000 and EGB systems. Instructions for proper connection that will secure the harness wires in the connector will be included.**
b) **EMC will provide each user with an updated DS-2000 Owner's Manual to include detail relating to failure modes and errors, explanation of emergency mode/open loop, expanded engage / disengage and boot up / boot down procedures, warnings about errors and how to proceed, warnings about cable connections as a single point failure, expanded routine maintenance requirements, and expanded backup battery testing procedures.**
c) **The expanded DS-2000 Owner's Manual will be made available for download on the EMC website for all interested parties.**

d) **EMC will offer a trade in value for the DS-2000 system towards the purchase of the newer AEVIT system.**
e) **EMC will provide each user with a video demonstrating the important aspects of the DS-2000 operation and explaining further the Owner's Manual.**

A checklist will be incorporated so that this process is documented for each recalled system.

Describe the cause(s) for the modifications:

NHTSA opened an investigation on the DS-2000 system approximately 1 year ago. During the course of the investigation, the NHTSA team, in cooperation with EMC, identified some methods for improving the overall safety of the system. EMC agreed to implement a number of the recommendations in the form of a Safety Campaign.

Describe the consequence(s):

Not applicable.

Identify any warning, which can (a) precede or (b) occur.

Not applicable.

If the update relates to a component or assembly purchased from a supplier, identify the supplier by corporate name and address.

Enercon Technologies
25 Northbrook Drive
Gray, Maine 04039

Identify the name and title of the chief executive officer or knowledgeable representative of the supplier:

Ryan Marcotte, General Manager

IV. Provide the Chronology In Determining the Recall Modifications

6. With respect to the update, furnish a chronological summary (including dates) of all the principle events that were the basis for the determination of the update. The summary should include, but not be limited to, the number of reports, accidents, injuries, fatalities, and warranty claims.

February 12, 2002 – EMC received notification from NHTSA that an investigation into the DS-2000 was underway.

April 01, 2002 - EMC provided the Office of Defects Investigation with all required documentation relating to reports, accidents, injuries, and fatalities.

December 04, 2002 – EMC met with NHTSA Office of Defects Investigation to discuss potential course of action for Safety Improvement Campaign.

December 27, 2002 – EMC finalized reference voltage check for DS-2000.

January 13, 2003 – EMC notified NHTSA Office of Defects Investigation of planned Safety Campaign.

January 31, 2003 – EMC finalized improved "Rate Limit" software.

V. Identify the Remedy

7. Furnish a description of the manufacturer's recommended modifications. Clearly describe the differences between the recall condition and the update.

The recalled units will be tracked by serial number and will contain the latest hardware and software revisions.

Hardware Revision # 11
Software Revision # 9

Clearly describe the distinguishing characteristics of the updated component/assembly versus the recalled component/assembly.

The Hardware and Software revision numbers are the only identifiable characteristics of the updated systems.

Identify and describe how and when the recall condition was corrected in production. If the production remedy was identical to the recall remedy in the field, so state. If the product was discontinued, so state.

Product was discontinued prior to NHTSA investigation.

VI. Identify the Recall Schedule

Furnish a schedule or agenda (with specific dates) for notification to other manufacturers, dealers/retailers, and purchasers. Please, identify any foreseeable problems with implementing the recall.

EMC is currently in the process of finalizing all documentation and preparing the video required for the mandatory safety update. We anticipate releasing letters to consumers and to dealers by April 1, 2003.

VII. Furnish Recall Communications

8. Furnish a final copy of all notices, bulletins, and other communications that relate directly to the defect and which are sent to more than one manufacturer, distributor, or purchaser. This includes all communications (including both original and follow-up) concerning this recall from the time your company determines the defect condition on, not just the initial notification.

EMC will provide all documentation to NHTSA for approval when available.

Note: These documents are to be submitted separately from those provided in accordance with Part 573.6 requirements.